

REPORT  
OF THE  
ACTING SECRETARY OF THE TREASURY,  
COMMUNICATING,

*In answer to a resolution of the Senate, relative to the coinage of the United States Mint and its branches, a report of the Director of the Mint.*

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JANUARY 19, 1853.—Referred to the Committee on Finance, and ordered to be printed.

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TREASURY DEPARTMENT,  
January 19, 1853.

SIR: I have the honor of transmitting herewith a report from the Director of the Mint, in reply to the resolution of the Senate of the 6th instant.

Very respectfully, your obedient servant,

WM. L. HODGE,  
*Acting Secretary of the Treasury.*

Hon. D. R. ATCHISON,  
*President pro tem. of the Senate.*

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MINT OF THE UNITED STATES, PHILADELPHIA,  
January 17, 1853.

SIR: I have already had the honor to acknowledge your communication of the 7th instant, transmitting to me a resolution passed by the Senate of the United States on the 6th inst., and requesting me "to furnish the information called for, so far as it may be in my power, with as little delay as practicable." I now proceed to answer at length the questions propounded by that resolution; first of all, begging to apologize for the delay which has been necessary to a satisfactory reply, due to the time required for the collection of the correspondence and other documents elucidating the subjects touched on, and for procuring copies of the same.

The resolution is in the following words:

"*Resolved*, That the Secretary of the Treasury be requested to inform the Senate what was the nominal, and what is the actual, fineness of the gold coins struck at the mint, prior to the year 1834, and at which they are now received by the mint for recoinage; also, to furnish copies of the reports, for the last ten years, of the commissioners who have

met annually, in conformity with law, to examine the weight and fineness of the coins of the United States, and of all communications to and from the Executive department of the government, in relation to any debasement of the coins struck in the mint, or either of its branches, which may have been detected by said commissioners or otherwise.

“Also, by what authority of law neither gold nor silver is separated, for the benefit of the depositor in the mint, when the net product of the operation, estimated upon the charges by the mint, is less than five dollars; whether said gold and silver is separated for the benefit of the mint, and used for its contingent expenses, to the loss of the depositor; and if so, by what authority of law, and what has been the amount, if any, both of the gold and of the silver, respectively, so taken from depositors, by the mint at Philadelphia, during each of the last four fiscal years.

“Also, what is the amount of silver now left unextracted, in the gold coins of the United States, by the mint at Philadelphia; and to furnish a statement of the aggregate sums, both of the gold and silver deposited, and of the deductions made therefrom, respectively, and for each quarter, as well as the rates charged for silver alloy, as exemplified in the abstracts of accounts of the mint, accompanying the reports of the First Auditor, numbered 105,120, 105,660, 106,256, 106,694, and 107,165; and whether the depositors of mixed gold bullion, from the 14th November, 1850, to 1st April, 1851, were charged by the mint full price for separating their silver from their gold, to wit: five cents per ounce, and then deprived of nearly the half of said silver, to wit: five per cent., by weight, left in the gold coins by the melter and refiner, and charged to said depositors as alloy; and if so, then for what reasons and by what authority of law: also, what was the aggregate amount, if any, of said five per cent. of silver so taken from said depositors; and to furnish copies of all communications to and from the department in any manner relating to this subject.

“Also, what deductions, if any, are made by the assayer of the mint in the reported fineness of gold bullion deposited, from the actual assay results thereof; and if any, then what disposal is made of the profits thence accruing, and by what authority of law.

“Also, by what act of appropriation or authority of law the profits of the coinage of silver three-cent coins are used by the mint of the United States to defray its contingent expenses.”

With a view to assist you in framing your official reply to this resolution, I offer the following statements:

The nominal fineness of the gold coins struck at the mint, prior to June, 1834, was 22 carats, answering to  $916\frac{2}{3}$  thousandths. The real fineness of such coins, from the commencement of coinage to the year 1832, was, on the average, from 911 to 912 thousandths. By a special trial of several parcels made at the mint, in 1841, it appeared that pieces dating from 1796 to 1809 were 911 thousandths fine; issues from 1810 to 1819 gave  $911\frac{1}{2}$  thousandths; those from 1820 to 1829 gave  $912\frac{1}{2}$ ; from 1830 to 1832 they were 912; and from 1833 to the middle of 1834, when the standard was changed, they were  $916\frac{1}{2}$  thousandths fine.

The low comparative fineness of the coins issued prior to 1833 requires, perhaps, some explanation in justice to the assayers holding



office at the periods referred to. The truth is, that the art of assaying, in the early days of this mint, had nowhere attained to its present delicacy and rigidity. This might be inferred from the mint *remedies*—that is, the legal allowance for deviation from standard. In the United States the gold coinage was within bounds if it did not fall below the standard by one part in one hundred and forty-four, or say seven thousandths. In Great Britain there was the same legal regulation. In France, before the revolution, there was an allowed deviation of sixteen thousandths. But the want of accuracy in early assaying may be exemplified by actual trials had at this mint. A considerable parcel of English guineas, of miscellaneous dates, assayed here in 1837, gave an average fineness of 912 thousandths, the professed fineness being  $916\frac{2}{3}$ ; and, in fact, it is only within a year that the British coinage has ever exceeded  $915\frac{1}{2}$ . The Portuguese gold coinage, which long performed a principal part in international currency, and which professed  $916\frac{2}{3}$ , was, in fact, between 912 and 914 thousandths fine; and the French louis d'ors, legally  $916\frac{2}{3}$ , were barely 900. What was then considered *fine* gold, and is still called so in commercial language, was only about 995 thousandths.

In addition to these facts, illustrative of the errors of former days, we find others in the registered reports of assays here upon deposits of foreign coins. The Portuguese were always reported as fully standard, or  $916\frac{2}{3}$ ; and the British even higher, sometimes to the extent of one-fourth of a carat grain, or  $2\frac{6}{10}$  thousandths, the true fineness being much less, as appears from the remarks already made.

Upon the change of standard in July, 1834, of course some part of the coin previously issued was returned to the mint for recoinage, and an embarrassing question was presented as to the rate at which it should be received. As to the coin issued from 1833 and the first half of 1834, no difficulty was experienced, the fineness being in satisfactory correspondence with the professed standard. Such issues were accordingly reported at 22 carats, or  $916\frac{2}{3}$  thousandths fine. In regard to the earlier issues, which, as I have stated, were but 911 to 912 fine, it would have been unjust to the melter and refiner to report them at their professed standard, thus making him responsible for bullion which in fact he never received. On the other hand, the depositor might reasonably expect a closer correspondence with the professed standard than what the exact assay, if reported, would indicate. By understanding with the Director of the Mint at that time, as I am informed by the assayer, it was concluded to divide the error between the depositor and the melter and refiner, reporting the coins issued prior to 1833 at 914 thousandths, which has accordingly since been done. I may remark that the total United States coin returned to us, from the change of standard to the close of this year, is but \$1,534,963, showing that of over twelve millions issued prior to 1834 but a small portion had remained in the country; and of the million and a half thus deposited for recoinage, more than a million was received in the last half of 1834, which being of such as was but recently issued, was reported at standard fineness. It may also be mentioned that of the balance since received, a great deal has been mixed in with other coin or bullion by the depositors themselves, and been melted up with the general mass, so that there was no occasion or possibility of reporting its assay separately. In fact, the total amount of United States



coin of old standard, which it has been necessary to report below its professed fineness, has probably been less than half a million. As there was no legal obligation to report upon such coin at any other than its fineness as found by actual assay, I am of opinion that the course adopted of reporting in fact slightly above the true fineness was as great a concession to depositors as could have been required under the circumstances, nor are they known to have ever made any objection to the course pursued.

It may be supposed, however, that although the operations at the mint, in the recoinage of its old issues, have not done injustice to the depositors, yet, in respect to the large amount which has been sent abroad, and there realized by sale as bullion, the owners have lost just in proportion as the coin was defective in standard. This may, I think, be shown not to have been the case. In the first place, it must be considered that the error of the assayers of that time grew out of a tendency, uniformly, in the direction of *over-estimating* the quality or fineness of bullion; and this error took place equally in estimating the value of the bullion received for coinage, as in estimating that of the coins delivered in payment. The depositor, therefore, was treated with entire justice. For example, suppose the depositor to have brought gold bullion weighing  $5\frac{1}{2}$  ounces, of a quality, in fact, three-eighths of a carat grain worse than the standard—of 22 carats—then required by law. The assayer would have reported this as being 22 carats fine, and the value would have been estimated at \$100, though the correct value was but \$99 61. On the other hand, the depositor was paid in coin weighing  $5\frac{1}{2}$  ounces, professing to be 22 carats, and in nominal value \$100, the fact being that they were worth but \$99 61. Of course, there was no injustice in all this to the depositor, who had received from the mint all that he delivered to it. But, in the second place, it would not appear that the purchaser and exporter of such coins were pecuniarily injured by the defect of fineness. It is well known that, prior to the gold bill of 1834, the gold coin of the United States was not a coin of circulation, but a marketable commodity, as bullion only, and at a considerable premium, which varied according to circumstances. Purchasers of such coin, it is very certain, were guided in their estimate of its value solely by its average return, as found by assay or sale in foreign countries. Bullion dealers, it is well known, are never governed in these matters by an estimate based solely on the assumed conformity of the coin to mint regulations, but by the results of their experience, when attempting to realize the bullion value on a melting and assay. \* Such parties were, therefore, never deceived or injured by the defect of fineness in our gold coins. They purchased what they expected to yield them, on recoinage or sale, so many sovereigns, or so many francs, and paid their price accordingly; nor were they deceived in the result. Had they been guided by implicit faith in the mint assay, the exporters would have lost, and the sellers have gained, just in proportion to the deficiency in the real below the actual fineness; but both the buyer for export and the home seller were guided by those most conclusive tests of the accuracy and conformity of coinage, namely, the constantly repeated trials by assayers of foreign countries, and the market values deduced therefrom. It is apparent, therefore, that the inaccuracy of our early gold



coinage, in its fineness, worked no injustice whatever, either in the dealings between the mint and the depositors, or in the bullion transactions outside of the mint.

The resolution of the Senate has called for copies of the reports of the commissioners of assay for the past ten years, together with all correspondence relative to a debasement of coins struck at the mint or branches, detected by said commissioners or otherwise.

I send herewith sundry documents, to enable you to comply with this part of the resolution. These are, a tabulated statement of the results of the annual assay from 1848 to 1851, both inclusive, marked No. I. I have not had the minutes copied in full, as this would have required much time, and will not, I presume, be required for the purposes of the resolution. I send, also, a list of the commissioners of assay in those years, distinguishing between those specially designated by the President and those attending by virtue of their offices, (marked II.) Following this is the report of the commissioners of their assay of the coins issued at the mint and branches in 1847, (marked III.) Next, the letter of Dr. R. M. Patterson, Director of the Mint, to the Hon. R. J. Walker, Secretary of the Treasury, enclosing the above report, (marked IV.) Next follows the letter of the Director to the President of the United States, (marked V,) accompanied by sundry explanatory documents, therein referred to, marked A, B, C, D, E, F, and G. In the above correspondence (constituting part of an appendix to this communication) will be found all the official documents in my possession in regard to a debasement of the coins of the United States.

The resolution further asks, "by what authority of law neither gold nor silver is separated for the benefit of the depositor in the mint, when the net product of the operation estimated upon the charges of the mint is less than five dollars?" To this it may be replied, that this has been authorized by the proviso of the 14th section of the mint act of January 18, 1837, which declares "that when gold and silver are combined, if either of these metals be in such small proportion that it cannot be separated advantageously, no allowance shall be made to the depositor for the value of such metal." In accordance with this provision, the limit of separating mixed bullion for depositors to cases where the net product of the operation is five dollars, has been introduced into the several tariffs prepared by the Director, for the approval of the Secretary of the Treasury. The first tariff with this provision was referred to Secretary Woodbury, in the Director's letter of January 28, 1837, and by him approved on the 1st of February succeeding. The other was submitted to Secretary Meredith on the 22d of May, 1849, and approved 29th. The legality of such a restriction, if otherwise susceptible of doubt, would be confirmed by the approbation of jurists of such eminence.

With reference to the other questions on this particular subject, propounded by the resolution, I have to make the following statements:

The silver in gold, and gold in silver, excluded by the above restriction from parting for the depositor, were delivered to the melter and refiner without charge until the latter part of 1846. Such mixed bullion being sent, along with other similar bullion, to the refinery,



the separation of the mixed metals in fact took place, and constituted an addition to the stock in the hands of the melter and refiner, over and above what he had been regularly charged with. Sometimes it happened that such accumulations were not only sufficient to cover the actual wastage in the operations of the melter and refiner, but to leave him a surplus; so that the apparent anomaly was presented of a gain, where it was indisputable that loss must, in fact, have occurred. To prevent such masking effects upon the account of the melter and refiner, it was determined to charge that officer with such items of separable bullion as were not partible for depositors; and this has accordingly been done since October, 1846. By the new arrangement the accumulation from such partings did not the less take place; but instead of going altogether to benefit the melter and refiner's account, and indirectly to the United States, by the diminution of his wastage, and the amount payable therefor from the ordinary fund of the mint, such bullion was directly charged to the melter and refiner, and constituted, ultimately, an item to the credit of the profit and loss account of the mint. If the charges to the debit of that account are less than the credits, the balance to the credit constitutes a surplus available for ordinary expenses of the mint, and is from time to time transferred to the ordinary account for that purpose; and thus, indirectly, the bullion so separated for the mint is used for its contingent expenses. The "authority of law" for such use is derived from the appropriations of Congress for the support of the mint, which, in the item for contingent expenses, not only authorize the use of the specific sum mentioned, but "all other available funds." This has always been construed to embrace the surpluses to the credit of profit and loss, in addition to the item of dollars specifically appropriated; and the accounts of the mint prepared conformably thereto, have been uniformly approved. As pertinent to this subject, I append a copy of a letter from the First Auditor, T. L. Smith, esq., to the treasurer of the mint, giving instructions relative to the forms of accounting for bullion separated for the mint, (marked VI,) and the reply of the treasurer thereto, (marked VII.)

To the question as to the amount of such bullion separated for the mint during each of the last four *fiscal* years, there would be some difficulty in replying, if a reply in terms is deemed necessary. It will be, I presume, sufficient to give the information for the four *calendar* years ending with 1852. The total charged to the melter and refiner, for silver parted for the mint from gold in 1849, was \$971 64; in 1850, \$23,645 42; in 1851, \$71,464 53; in 1852, \$28,830 70. For gold parted for the mint from silver, there was a charge, in 1849, of \$55 81, and none since. What little silver containing gold we now receive has either a proportion large enough to report for the depositor, under the present tariff, or too small to pay the expense of separation. The large amount of silver parted for the mint, as above stated, is of course due to the fact that we have been receiving in the four past years not only an immense amount of gold bullion, (over 142 millions,) but almost the whole of it containing a small proportion of silver. The accumulation of deposits containing silver in amount not sufficient to part for the depositor,



would, of course, be very great. I may mention, also, that the disproportioned amounts in the years 1850 and 1851 is in part deceptive, the silver being charged in one year and accumulated in another; and the same was true in regard to 1849 and 1850. It would, however, be a great error to suppose that the aggregate of the silver thus parted was a gain of that amount to the mint. It was subject to a credit to the melter and refiner, for the amount used in alloying the gold of which it was a component part; and the cost of separating and copper alloy having been sustained by the mint, constitute a further deduction from the gross value of such parted silver. We may correctly estimate the real gain to the mint by a comparison with the net return for silver parted for depositors, the charges for which are commensurate with the cost to the mint. It appears, then, that from the 1st July, 1849, to the close of 1852, the silver parted for depositors was worth \$941,094 04. The deductions were \$501,895 63, or fifty-three per cent. The same rate of deductions on the silver parted for the mint, gives a net return of \$58,709 on an aggregate deposit of one hundred and forty-two millions.

To the further questions of the resolution, as to silver alloy in the gold coins, and other kindred matters, I have to state that, since October last, the silver left unextracted in the gold coins, and constituting the silver alloy, is a hundred and tenth part, by weight, of such coins, being the least proportion ever adopted in the practice of this mint. Our gold coin is therefore now constituted of 900 parts gold, about 9 silver, and 91 copper.

Appended to this communication will be found a statement (marked (VIII)) exhibiting information called for as to the aggregate of gold, silver parted, deductions, and silver alloy, during each quarter of three years past. The resolution refers to the information, as exemplified in certain auditors' reports of which I know nothing, but I presume my statement embraces all that is required. From the aggregate results therein presented it appears that, in the years referred to, the total gold deposits were \$131,809,512; the silver contained \$906,700; the deductions therefrom \$491,096, including \$170,883 of silver left as alloy in the coin.

The resolution asks whether from November 14, 1850, to March 31, 1851, depositors were charged full price for separating silver from their gold, and also with "nearly half of such silver, to wit: five per cent. by weight of the gold coins," as a deduction for alloy; to which I answer in the affirmative. The "authority of law" for such action is found in section 18th of the mint act of January 18, 1837, relative to the charges for the separation of mixed bullion, and in the 8th section of the same act, prescribing the alloy of the gold coins, and providing that the silver alloy shall "not exceed one half of the whole alloy;" that is, five per cent. by weight of such coins. In order that this subject may be clearly understood, I may state that the complete separation of mixed bullion into its constituent elements, so as to produce the gold and silver absolutely pure and disunited, is quite impracticable as a mint operation; or if practicable, only at a cost far exceeding any advantage to be derived from it. The obligation on the mint of "separating the gold and silver, when these metals exist together in the bul-



lion," must have a practicable common sense interpretation, which I conceive to be that the bullion must be separated so as to fit it for manufacture into standard coins. If, therefore, gold is brought to the mint containing silver in greater proportion than five per cent. of the standard weight, there is an obligation to separate the excess, or else the coin made therefrom would have silver alloy beyond the limit allowed. Under ordinary circumstances, however, the mint separates a far greater proportion of silver than is legally required. At present we aim to separate the silver so as to leave but about nine thousandths remaining as alloy in the coin. A few months since the amount left was twenty thousandths; in the latter part of 1850, and the first quarter of 1851, the extreme limit, or fifty thousandths, was taken, as already stated. The same limit has always been allowed at the branch mints at Charlotte and Dahlonega.

But while, as it thus appears, a portion of silver in partible gold is necessarily left unseparated from the bullion, varying according to change of circumstances, it should be understood that the assayers report the absolute quantity of silver contained in the deposite, and the owner is consequently credited with the whole. Inasmuch, then, as a portion is left in the coin, it becomes necessary to charge the depositor with the value of such portion as silver alloy.

If my explanations have been understood, it will be plain that the full charge for separating silver from gold on the one hand, and a "deprivation" of part of said silver left in the coin on the other, are necessary adjuncts, and not contradictory arrangements, as the language of the resolution would seem to imply. With regard to the rates of charge, both for parting and alloy, these are fixed by the Secretary of the Treasury, on the recommendation of the Director of the Mint, being 5 cents per ounce of gold for the former, and 129 cents per ounce of silver for alloy. The proportions of alloy are limited, as before mentioned, by the 8th section of the mint act of January 18, 1837; but, subject to that limit, are a matter of regulation, from time to time, by the Director of the Mint, as circumstances may require. A regulation of this kind, fixing the alloy at the full allowance of law, was enforced by the Director from the 14th of November, 1850, to March 31, 1851; and the resolution of the Senate asks the reasons therefor. I have already given the "authority of law;" the reasons for taking advantage of that authority were briefly these:

From about the middle of 1849 to nearly the close of the first quarter of 1851, the mint was subjected to a pressure of deposits which it was not able, with the arrangements then organized, effectually to meet. The gold from California is unfit for manufacture into standard coins of the United States, without the previous operation of separating the excess of silver which it contains over and above the quantity allowable as alloy. Prior to our receipts from California, but very little of such separable bullion was received, and the refining department was organized on a very small, though sufficient scale. To meet the new demand created by the unprecedented quantities of such bullion brought from California, required new constructions, extensive enlargements, a new arrangement of the space within the mint, and new machinery, to perfect and complete which, at the same time that the pressure upon



the mint was constant and increasing, was a work of much labor, anxiety, and delay. In such circumstances, the means of promptly paying deposits were insufficient. The average delay in the cashing of deposits in the year 1850, was twenty-five and a half days; in January of 1851, there was a delay of forty-seven days; the average, however, being twenty-five and a half. The inconvenience of this condition of things was not merely the loss of interest to the depositors, but, in many cases, their necessities, or the desire to return to their homes, compelled them to submit to most exorbitant discounts for prompt payment. It was evident that, under such circumstances, the resumption of prompt payment, by the mint, was a duty of the first necessity. In considering the means of effecting that object, the Director reflected that the refining operations, which were the sole cause of the delay, were conducted with a closeness which, however desirable under ordinary circumstances, was not required by law, and injured the depositor, by the consequent delay, far more than it benefited him. Instructions were therefore given to the melter and refiner to separate silver from gold only to the extent required to procure ingots conformed to the requirements of the law. As a consequence, partly, of this regulation, the mint was enabled, in a few months, to resume prompt payments. The former basis of the parting operations—interrupted by the extraordinary contingency which has been explained—was then renewed, and continued till October last, when a new regulation, to the further benefit of the depositor, was adopted. The mint being entirely prepared for any probable amount of refining or coining, I can conceive of no possible contingency which should require a future resort to the full limit of alloy authorized by law; but it is, perhaps, due to my predecessor, Dr. Patterson, to say, that were I placed in the same circumstances as he was at the time referred to, I should deem it my right, and my duty, to adopt precisely the same course of action.

To the question as to the amount of silver alloy used in the period in question—from November 14, 1850, to March 31, 1851—and charged to depositors, I reply, that it was \$42,759 84. Annexed are the only communications on this subject which have passed between the department and the mint, being a letter from the First Auditor to the Treasurer, (marked IX,) and the Treasurer's reply, (marked X.) I also send an extract from the Director's report to the President, dated January 27, 1851, (marked XI,) on the subject of the difficulty at that time experienced by the mint, and the causes of it. This report was printed by the House of Representatives as Ex. Doc. No. 50, 31st Congress, 2d session.

The resolution further asks whether deductions are made by the assayer, in the reported fineness of gold bullion deposited; and if any, what disposal is made of the profits thence accruing, and by what authority of law. To this it may be stated, in general, that no such deductions are made. It may, however, be mentioned, that it is the practice of the assay office to report the fineness of deposits to a fraction of  $\frac{1}{2000}$  part. As the index of the assay-beam, of course, rarely stands so as to indicate exactly that fraction, the assayer reports the fineness which approximates to the result. If the index is but slightly below a certain fineness, that fineness is reported; if decidedly below,



the next fraction below is reported. As pertinent to this subject, I may mention that the Bank of England, which is the great purchaser of bullion there, as the mint is here, does not report to a closer fraction than the eighth of a carat grain, or  $1\frac{3}{10}$  thousandths, nearly three times larger than the fraction of report at this mint.

The resolution finally asks, "by what act of appropriation, or authority of law, the profits of the coinage of silver three-cent coins are used by the mint of the United States to defray its contingent expenses?"

Congress having seen reason to order the coinage of a piece of a value, by tale, exceeding its intrinsic value as bullion, the profit thus necessarily accruing tended to swell the items to the credit of the profit and loss account of the mint, and constituted, therefore, a portion of those "other available funds" appropriated to our use by the usual formula of our appropriation for contingent expenses. That the profits so accruing were really intended to pass to the mint, under that clause, is the more certain from the fact that, in the grounds of estimates submitted by the Director in 1851 and 1852, as explanatory of the appropriations asked for, and laid before the Committee of Ways and Means, the profits from three-cents are specially counted as part of our available means. If there was an irregularity or illegality in the use of them, the committee seem not to have discovered it or made it known.

I append, herewith, extracts of correspondence between this office and the department, relative to the profits on the three-cent piece, marked XII, XIII, XIV, and XV.

It is a manifest observation, with which I may close this letter, that if the mint should be deprived of the authority to use the balances of gain accruing from its operations in separating, or on the three-cent coinage, our appropriations would have to be enlarged precisely in proportion to the means thus taken from it. I may add, also, that the correctness of the expenditures of such items is as strictly examined as if the amounts, instead of being drawn from our own resources, were drawn from the treasury.

Very respectfully, your obedient servant,

GEORGE N. ECKERT,

*Director.*

HON. THOMAS CORWIN,

*Secretary of the Treasury, Washington.*



## I.

*Table exhibiting the results of the annual trials made, by commissioners appointed for that purpose, of the coins of the United States, issued in each year from 1842 to 1851, both inclusive.*

From which mint issued.	In what year.	Species and form of metal on which trial was made.	Standard weight of metal tried.	Actual weight by trial of same.	Standard fineness of metal tried.	Actual fineness by trial of same.
Philadelphia .....	1842	Gold coins, value..... \$972 50	Ounces. 52.272	Ounces. 52.265	Thousandths. .....	Thousandths. .....
		Silver coins, value..... 176 25	151.464	151.454	900	900
		Bar from gold coins .....	.....	.....	900	900.9
New Orleans.....	1842	Bar from silver coins .....	.....	.....	.....	.....
		Gold coins, value..... \$415 00	22.306	22.304	.....	.....
		Silver coins, value..... 176 05	151.293	151.278	.....	.....
		Bar from gold coins .....	.....	.....	900	900.5
		Bar from silver coins .....	.....	.....	900	899.5
Charlotte .....	1842	Gold coins, value..... \$260 00	13.975	13.985	.....	.....
		Bar from gold coins .....	.....	.....	900	899.8
Dalhousie .....	1842	Gold coins, value..... \$610 00	32.787	32.789	.....	.....
		Bar from gold coins .....	.....	.....	900	900.1
Philadelphia .....	1843	Gold coins, value..... \$2,457 50	133.703	133.701	.....	.....
		Silver coins, value..... 263 40	226.359	226.387	.....	.....
		Bar from gold coins .....	.....	.....	990	899.9
		Bar from silver coins .....	.....	.....	900	900.6
New Orleans .....	1843	Gold coins, value..... \$3,155 00	169.581	169.573	.....	.....
		Silver coins, value..... 272 50	234.180	234.155	.....	.....
		Bar from gold coins .....	.....	.....	900	899.5
		Bar from silver coins .....	.....	.....	900	898.6
Charlotte .....	1843	Gold coins, value..... \$460 00	24.725	24.727	.....	.....
		Bar from gold coins .....	.....	.....	900	899.8
Dalhousie .....	1843	Gold coins, value..... \$1,245 00	66.919	66.920	.....	.....
		Bar from gold coins .....	.....	.....	900	899.9



TABLE—Continued.

* From which mint issued.	In what year.	Species and form of metal on which trial was made.	Standard weight of metal tried.		Actual weight by trial of same.		Standard fineness of metal tried.		Actual fineness by trial of same.	
			Ounces.		Ounces.		Thousands.		Thousands.	
Philadelphia.....	1844	Gold coins, value.....	50.928	\$947 50	50.920		.....	.....	.....	.....
		Silver coins, value.....	92.039	107 10	92.033		.....	.....	.....	.....
		Bar from gold coins.....					900		899.9	
New Orleans.....	1844	Bar from silver coins.....					900		900.4	
		Gold coins, value.....	161.250	\$3,000 00	161.224		.....	.....	.....	.....
		Silver coins, value.....	203.414	236 70	203.328		.....	.....	.....	.....
Charlotte.....	1844	Bar from gold coins.....					900		899.8	
		Bar from silver coins.....					900		901.1	
		Gold coins, value.....	11.825	\$220 00	11.825		.....	.....	.....	.....
Dahlonaga.....	1844	Bar from gold coins.....					900		899.7	
		Bar from silver coins.....					900		899.5	
		Gold coins, value.....	59.528	\$1,107 50	59.507		.....	.....	.....	.....
Philadelphia.....	1845	Bar from gold coins.....	77.400	\$1,440 00	77.399		.....	.....	.....	.....
		Silver coins, value.....	73.003	84 95	73.003		.....	.....	.....	.....
		Bar from gold coins.....					900		900.3	
New Orleans.....	1845	Bar from silver coins.....					900		900.7	
		Gold coins, value.....	35.744	\$665 00	35.740		.....	.....	.....	.....
		Silver coins, value.....	171.102	199 10	171.082		.....	.....	.....	.....
Dahlonaga.....	1845	Bar from gold coins.....					900		899.5	
		Bar from silver coins.....					900		900.2	
		Gold coins, value.....	60.738	\$1,130 00	60.738		.....	.....	.....	.....
Philadelphia.....	1846	Bar from gold coins.....					900		900.2	
		Bar from silver coins.....					.....	.....	.....	.....
		Gold coins, value.....	66.247	\$1,232 50	66.247		.....	.....	.....	.....
New Orleans.....	1846	Silver coins, value.....	121.773	141 70	121.755		.....	.....	.....	.....
		Bar from gold coins.....					900		900	
		Bar from silver coins.....					900		901.3	
New Orleans.....	1846	Gold coins, value.....	67.456	\$1,255 00	67.444		.....	.....	.....	.....
		Silver coins, value.....	208.398	242 50	208.346		.....	.....	.....	.....
		Bar from gold coins.....					900		899.3	
New Orleans.....	1846	Bar from silver coins.....					900		901.1	



Charlotte	1846	Gold coins, value.....	\$100 00	5, 375	5, 375	900	900, 2
		Bar from gold coins.....					
Dahlonega	1846	Gold coins, value.....	\$1, 010 00	54, 287	54, 287	900	899, 8
		Bar from gold coins.....					
Philadelphia	1847	Gold coins, value.....	\$10, 75 00	584, 531	584, 531	900	899, 9
		Ditto.....	52 50	2, 822	2, 822		
		Silver coins, value.....	118 10	101, 492	101, 492		
		Ditto.....	2 25	1, 933	1, 933		
		Bar from gold coins.....				900	899, 9
		Bar from \$52 50 gold coins.....				900	899, 9
		Bar from silver coins.....				900	900, 4
		Bar from \$2 25 silver coins.....				900	901, 1
New Orleans	1847	Gold coins, value.....	\$5, 080 00	326, 800	326, 765		
		Ditto.....	52 50	2, 822	2, 820		
		Silver coins, value.....	275 75	236, 973	236, 968		
		Ditto.....	2 25	1, 933	1, 933		
		Bar from gold coins, No. 1.....				900	899
		Ditto.....second assay.....				900	899
		Ditto.....third assay.....				900	897, 2
		Bar from gold coins, No. 2.....				900	899, 6
		Bar from \$52 50 gold coins.....				900	899, 5
		Slip from eagle piece.....				900	899
		Ditto.....				900	899
		Slip from half eagle.....				900	899, 2
		Slip from quarter eagle.....				900	899, 5
New Orleans	1847	Bar from silver coins.....				900	901, 2
		Ditto.....\$2 25 silver coins.....				900	901, 3
Charlotte	1847	Gold coins, value.....	\$610 00	32, 788	32, 792		
		Ditto.....	22 50	1, 209	1, 210		
		Bar from gold coins.....				900	899, 9
Dahlonega	1847	Bar from gold coins.....	\$22 50			900	899, 3
		Gold coins, value.....	820 00	44, 075	44, 077		
		Ditto.....	22 50	1, 209	1, 209		
		Bar from gold coins.....				900	899, 9
		Bar from gold coins.....	\$22 50			900	899, 2
Philadelphia	1848	Gold coins, value.....	2, 145 00	115, 294	115, 290		
		Ditto.....	52 50	2, 822	2, 821		
		Silver coins, value.....	46 25	39, 746	39, 751		
		Ditto.....	3 70	3, 180	3, 179		



TABLE—Continued.

From which mint issued.	In what year.	Species and form of metal on which trial was made.	Standard weight of metal tried.	Actual weight by trial of the same.	Standard fineness of metal tried.	Actual fineness by trial of same.
Philadelphia.....	1848	Bar from gold coins.....			Thousands.	Thousands.
		Bar from silver coins.....			900	900
New Orleans.....	1848	Gold coins, value.....	\$370 00	19,882	900	900.4
		Ditto.....	60 00	3,225		
		Silver coins, value.....	324 50	278,867		
		Ditto.....	2 75	2,363		
		Bar from gold coins.....			900	898.8
Charlotte.....	1848	Bar from silver coins.....			900	900.4
		Gold coins, value.....	\$460 00	24,729		
		Ditto.....	30 00	1,612	900	899.9
		Bar from gold coins.....				
Dahlonaga.....	1848	Gold coins, value.....	\$612 50	32,922		
		Ditto.....	45 00	2,419		
		Bar from gold coins.....				
Philadelphia.....	1849	Gold coins, value.....	\$6,634 00	356,577	900	899.7
		Ditto.....	55 50	2,983		
		Silver coins, value.....	102 05	87,699		
		Ditto.....	5 70	4,908		
		Bar from gold coins.....			900	900.2
New Orleans.....	1849	Bar from silver coins.....			900	900.9
		Gold coins, value.....	\$455 00	24,456		
		Ditto.....	33 00	1,774		
		Silver coins, value.....	238 90	205,305		
		Ditto.....	1 95	1,676		
		Bar from gold coins.....			900	900.3
Charlotte.....	1849	Bar from silver coins.....			900	899.6
		Gold coins, value.....	\$448 00	24,080		
		Ditto.....	25 50	1,371		
		Bar from gold coins.....			900	899.9



Dahlonega	1849	Gold coins, value	\$552 50	29,697 1,371	29,697 1,371	900	899,9
		Ditto	25 50				
Philadelphia	1850	Bar from gold coins		268,750	268,750		
		Gold coins, value	\$5,000 00	6,208	6,208		
		Ditto	115 50	38,027	38,027		
		Silver coins, value	44 25	4,898	4,898		
		Ditto	5 70				
		Bar from gold coins				900	899,7
		Bar from silver coins				900	900,9
		Gold coins, value	\$3,644 00	195,865	195,865		
		Ditto	100 50	5,402	5,402		
		Bar from gold coins				900	899,6
		Silver coins, value	\$201 10	250,164	250,164		
		Ditto	5 70	4,898	4,898		
		Bar from silver coins				900	899,1
		Gold coins, value	\$344 00	18,439	18,439		
		Ditto	25 50	1,371	1,371		
		Bar from gold coins				900	899,9
		Gold coins, value	\$549 00	32,197	32,201		
		Ditto	25 50	1,371	1,371		
		Bar from gold coins				900	900
		Gold coins, value	\$5,737 50	308,391	308,391		
		Ditto	197 50	10,616	10,613		
		Bar from gold coins				900	900
		Silver coins, value	\$38 65	33,215	33,220		
		Three-cent coins, value	78 00	67,031	67,030		
		Silver coins, value	3 70	3,180	3,180		
		Bar from silver coins				900	900,4
		Bar from three-cent coins				750	745,5
		Gold coins, value	\$3,370 00	181,137	181,134		
		Ditto	197 50	10,616	10,614		
		Bar from gold coins				900	899,5
		Silver coins, value	\$56 60	48,641	48,641		
		Ditto	2 70	2,320	2,320		
		Bar from silver coins				900	899,6
		Three-cent coins, value	84 32	3,701	3,699		
		Bar from three-cent coins				750	745
		Gold coins, value	\$290 00	15,587	15,587		
		Ditto	85 00	4,569	4,569		
Charlotte	1851						

TABLE—Continued.

From which mint issued.	In what year.	Species and form of metal on which trial was made.	Standard weight of metal tried.	Actual weight by trial of the same.	Standard fineness of metal tried.	Actual fineness by trial of same.
Charlotte.....	1851	Bar from gold coins.....	Ounces.	Ounces.	Thousands.	Thousands.
Dallonega.....	1851	Gold coins, value..... \$308 50	43. 457	43. 470	900	899. 8
		Ditto..... 85 00	4. 569	4. 571	.....	.....
		Bar from gold coins.....	.....	.....	900	899. 3



## II.

*Names of the commissioners attending at the annual trials reported in the foregoing table.*

In 1842.

Commissioners ex officio.

Hon. Archibald Randall,  
Henry M. Watts, Esq.

Commissioners selected by the President.

Gen. Robert Patterson,  
Prof. John Torrey,  
Prof. John F. Frazer.

In 1843.

Hon. Archibald Randall,  
Henry M. Watts, Esq.

Edward Coles,  
Prof. James Renwick,  
Samuel V. Merrick.

In 1844.

Hon. Archibald Randall,  
Henry M. Watts, Esq.,  
Calvin Blythe.

Robert Tyler, Esq.,  
Samuel J. Beebee,  
Gen. George Cadwalader.

In 1845.

Hon. Archibald Randall,  
Thomas M. Pettit, Esq.,  
Henry Horn.

Prof. Benjamin Silliman, sr.,  
Rev. George W. Bethune,  
Prof. A. D. Bache.

In 1846.

Hon. John K. Kane,  
Thomas M. Pettit, Esq.,  
James Page.

Prof. Henry Vethake,  
Prof. John W. Draper,  
Prof. John F. Frazer.

In 1847.

Hon. John K. Kane,  
Thomas M. Pettit, Esq.,  
James Page.

Prof. Robley Dunglison,  
Prof. James B. Rogers,  
Prof. Eben N. Horsford.

In 1848.

Hon. John K. Kane,  
Thomas M. Pettit, Esq.,  
James Page.

Prof. John Johnston,  
John L. Aspinwall,  
Prof. John C. Cresson.

In 1849.

Hon. John K. Kane,  
John W. Ashmead, Esq.,  
William D. Lewis.

John Price Wetherill,  
Henry M. Watts, Esq.

In 1850.

Hon. John K. Kane,  
John W. Ashmead, Esq.,  
William D. Lewis.

Prof. Edward Hitchcock,  
Hon. Joseph R. Ingersoll,  
Charles B. Trego,  
Daniel B. Smith,  
Stephen Colwell,  
David M. Stone.

In 1851.

Hon. John K. Kane,  
John W. Ashmead, Esq.,  
William D. Lewis.

Prof. Robert Hare,  
Stephen Colwell,  
Dr. Samuel Moore.

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### III.

#### MINT OF THE UNITED STATES,

*Monday, February 14, 1848.*

The commission appointed for the purpose of making the annual trial of the gold and silver coins reserved at the mint and its branches during the year 1847, met at the mint on Monday, February 14, 1848.

Previous to its organization the Director read the 32d section of the act of Congress of January 18, 1837, supplementary to the act entitled "An act establishing a mint and regulating the coins of the United States," being the section of law which declares the manner in which the commission shall be constituted.

The Director also presented a letter from McClintock Young, esq., acting Secretary of the Treasury, dated January 29, ultimo, and it thereby appeared that Professor Robley Dunglison, of the Jefferson Medical College, Philadelphia, Professor James B. Rogers, of the University of Pennsylvania, Philadelphia, and Professor E. N. Horsford, of Harvard University, Cambridge, Massachusetts, had been appointed as special commissioners, under the above section, to attend the annual assay.

A majority of the whole number of the commissioners legally constituted being ascertained to be present, viz: Hon. John K. Kane, judge of the district court of the United States for the eastern district of Pennsylvania, Thomas M. Pettit, esq., attorney of the United States for the eastern district of Pennsylvania, and James Page, esq., collector of the port of Philadelphia, being the commissioners ex officio; and Professor Robley Dunglison, James B. Rogers, and E. N. Horsford, above named, being the commissioners specially designated, the



commission was duly organized, the chair being taken by Hon. Judge Kane, and Robert Patterson, Director's clerk, acting as secretary.

The laws bearing upon the duties of the commissioners were then read, namely, sections 8, 9, 10, 22, 25, 27, and 28, of the mint act of January 18, 1837; the act of May 19, 1828; and section 4 of the act of March 3, 1835. The minutes of the last annual assay were also read.

The following resolutions were adopted, specifying the manner in which the business of the commission should be conducted:

1. *Resolved*, That the commissioners will proceed—

1st. To count the pieces which have been reserved at the mint and its branches, for purposes of the annual trial—under the provisions of section 27 of the act of January 18, 1837, and section 4 of the act of March 3, 1835, and to compare the same with the registry made thereof at the time of their deposit under that section.

2d. To ascertain the weight thereof—

1. By weighing at several processes the gold and the silver coins from each mint, and comparing the results with the legal weights according to the acts prescribing the same.
2. By weighing specimens taken indiscriminately from the gold and the silver coinage of each mint, and comparing the results with the legal weights.

3d. To ascertain the fineness thereof—

1. By assays of the aggregate, as near as may be practicable, of the gold and of the silver coins from each mint, and comparing the results with the legal standards.
2. By assays of specimens taken indiscriminately from the gold and silver coinage of each mint, and comparing the results with the legal standards.

4th. To cause the accuracy of the weights ordinarily employed in the transactions of the mint to be tested, according to the standards provided by sections two and three of the act of May 19, 1828.

2. *Resolved*, That the several duties above set forth be referred to the special charge and supervision of three committees, each consisting of at least two members, and that such committees have the power to associate to them such other members of the commission as they may judge proper.

It was moved that the committees above authorized be appointed by the Chair; which was agreed to: whereupon Doctors Dunglison and Rogers and Mr. Pettit were appointed the committee on the counting, Professors Horsford and Dunglison on the weighing, and Professors Rogers and Horsford on the assays.

The several committees then proceeded to discharge the duties devolved upon them by the above resolutions, and made their reports, as follows:

The committee on the counting reported that they had opened the several packages of gold and silver coins reserved at the mint and branch mints during the year 1847, for the annual assay, and compared the amounts with the registers, and found the same to be correct.

The committee on the weighing reported that the gold coins of the Philadelphia mint were of the value of \$10,875—consequently their standard weight should be 584.531 ounces. Their actual weight was 584.531 ounces; so that they were exactly of the legal standard. There were also selected indiscriminately from the same coinage, three eagles, three half eagles, and three quarter eagles, the legal weight of which should have been 2.522 ounces: the actual weight was found to be the same. ●

The silver coins reserved at the Philadelphia mint were of the value of \$115 10—consequently their legal weight should be 101.492 ounces. The actual weight was found to be 101.492 ounces; so that they were exactly of the legal standard weight. Three half dollars and three quarter dollars were then taken indiscriminately from the same coinage and weighed. The legal weight should have been 1.9335 ounce: the actual weight was found to be the same.

The gold coins reserved at the New Orleans mint were of the value of \$6,050—consequently their legal weight should have been 326.800 ounces. The actual weight was found to be 326.766 ounces; so that they fell short of the legal standard thirty-four thousandths of an ounce. Three eagles, three half eagles, and three quarter eagles were then taken indiscriminately from the same coinage and weighed. The legal weight should have been 2.522 ounces. The actual weight was found to be 2.820 ounces; so that they were two thousandths of an ounce below the legal standard.

The silver coins reserved at the New Orleans mint were of the value of \$275 75—consequently the legal weight was 236.973 ounces. The actual weight was 236.968 ounces; so that they were five thousandths below the legal standard weight. Three half dollars and three quarter dollars were then taken indiscriminately from the same coinage and weighed. The legal weight should have been 1.9335 ounce: the actual weight was found to be the same.

The gold coins reserved at the Dahlonega branch mint were of the value of \$820—consequently the legal weight was 44.075 ounces. The actual weight was 44.077; so that they exceeded the legal standard weight by two thousandths of an ounce. Three half eagles and three quarter eagles were then taken indiscriminately from the same coinage and weighed. The legal weight should have been 1.209 ounce: the actual weight was found to be the same.

The gold coins reserved at the Charlotte branch mint were of the value of \$610—consequently their legal weight should have been 32.788 ounces. Their actual weight was found to be 32.792 ounces; so that they exceeded the legal standard weight by four thousandths of an ounce. Three half eagles and three quarter eagles were then taken indiscriminately from the same coinage and weighed. The legal weight should have been 1.209 ounce: the actual weight was found to be 1.210 ounce; so that they exceeded the legal standard weight one thousandth of an ounce.

The committee on the weighings reported, further, that they had tested the accuracy of the weights ordinarily employed at the mint, by comparing them with the series of standard weights kept for that



purpose, and the correspondence was found to be in every instance satisfactory.

The committee on the assays reported that they had caused assays to be made of the aggregate, as near as practicable, of the gold and silver coins from each mint, and that the following results were obtained:

The reserved gold coins of the Philadelphia mint were of the fineness of 899.9 thousandths; so that they were 0.1 thousandth below the legal standard.

The reserved silver coins of the Philadelphia mint were of the fineness of 900.4 thousandths; so that they were 0.4 thousandth above the legal standard.

The reserved gold coins of the New Orleans mint were of the fineness of 898 thousandths; so that they were 2.0 thousandths below the legal standard.

The reserved silver coins of the New Orleans mint were of the fineness of 901.2 thousandths; so that they were 1.2 thousandth above the legal standard.

The reserved gold coins of the Dahlonega branch mint were of the fineness of 899.9 thousandths; so that they were 0.1 thousandth below the legal standard.

The reserved gold coins of the Charlotte branch mint were of the fineness of 899.9 thousandths; so that they were 0.1 thousandth below the legal standard.

The committee also reported that they had caused specimens from the coinages of several mints to be selected indiscriminately and assayed, with the following results:

From the gold coins of the Philadelphia mint there were taken three eagles, three half eagles, and three quarter eagles, which were melted and assayed, and found to be of the fineness of 899.9 thousandths, being 0.1 thousandth below the legal standard.

From the silver coins of the Philadelphia mint there were taken three half dollars and three quarter dollars, which were melted and assayed, and found to be of the fineness of 901.1 thousandths, being 1.1 thousandth above the legal standard.

From the gold coins of the New Orleans mint there were taken three eagles, three half eagles, and three quarter eagles, which were melted and assayed, and found to be of the fineness of 898.5 thousandths, being 1.5 thousandth below the legal standard.

From the silver coins of the New Orleans mint there were taken three half dollars and three quarter dollars, which were melted and assayed, and found to be of the fineness of 901.3 thousandths, being 1.3 thousandth above the legal standard.

From the gold coins of the Dahlonega branch mint there were taken three half eagles and three quarter eagles, which were melted and assayed, and found to be of the fineness of 899.8 thousandths, being 0.2 thousandth below the legal standard.

From the gold coins of the Charlotte branch mint there were taken three half eagles and three quarter eagles, which were melted and assayed, and found to be of the fineness of 900.3 thousandths, being 0.3 thousandth above the legal standard.

The commissioners then adjourned, to meet again at the mint tomorrow morning, 15th instant, at 9 o'clock a. m.

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TUESDAY, *February 15, 1848.*

The report of the committee on assays, made yesterday, having indicated 898 thousandths as the fineness of the gold coins from the New Orleans mint, when melted in considerable quantity, and that being the lowest limit of purity admitted by the legal standard, the commission met this morning, by adjournment, for the purpose of repeating and revising the assay of the gold coins from the branch mint at New Orleans: present, Judge Kane, Colonel Page, Professor Rogers, Professor Horsford, Mr. Pettit, and Professor Duglison.

It was then resolved that there be now made—

1. Re-assays from the same bar of gold which was yesterday produced by the melting together a number of gold coins from the New Orleans branch mint, and that such re-assays be made severally by pieces taken from the two extremities of each bar.

2. Assays from each end of a bar to be produced by melting together a considerable number of the gold coins from the New Orleans branch mint.

3. Assays severally of at least four pieces of the gold coins from the New Orleans branch mint.

The committee on the assays then proceeded to discharge the duty devolved upon them by the above resolution, and reported the following results:

1. That the re-assays of slips cut from the upper and lower ends of the bar cast yesterday showed the fineness to be 898 thousandths in the former case, and 897.8 thousandths in the latter.

2. That assays of slips cut from the upper and lower ends of a bar cast to-day, showed in the former case a fineness of 898.6 thousandths, and in the latter of 898.6 thousandths.

3. That slips were cut from two eagle pieces and separately assayed, showing the fineness of the one to be 899 thousandths, and of the other to be 898 thousandths. That a slip from a half-eagle piece showed, on assay, a fineness of 898.2 thousandths, and one from a quarter-eagle piece a fineness of 899.5 thousandths.

The committee also reported that the weight of the bar melted yesterday was 174.63 ounces, and of that melted to-day, 92.42 ounces.

The commissioners thereupon decided, unanimously, that the examination of the gold and silver coins reserved at the mint and its branches, in the year 1847, was, in their judgment, sufficient.

The commissioners also decided that the gold and silver coins reserved at the mint of the United States, Philadelphia, and at the branch mint at Dahlonega and at Charlotte, and the silver coins reserved at the branch mint at New Orleans, do not differ from the legal standard weight and fineness by a greater amount than is allowed by law, and are therefore reported as satisfactory; that the gold coins reserved at the branch mint at New Orleans do not differ from the legal standard of weight by a greater difference than is allowed by law, but that it



does *not* "appear that these pieces do not differ from the standard *fineness* by a greater quantity than is allowed by law;" but upon the consideration of the question whether any greater deviation from the legal standard fineness does appear, the commissioners were unanimously of opinion that there *does*. Whereupon the following certificate of the fact was made, to be presented to the President of the United States:

MINT OF THE UNITED STATES,  
*Philadelphia, February 15, 1848.*

We, the judge of the district court of the United States for the eastern district of Pennsylvania, the attorney of the United States for the said district, the collector of the port of Philadelphia, and Robley Dungleon, James B. Rogers, Eben N. Horsford, designated for the purpose hereinafter mentioned, by the President of the United States, do hereby report and certify that on the 14th and 15th days of this month we made trial of the coined pieces reserved at the mint and its branches at the several deliveries of coins made during the past year, pursuant to law, and that we did, in the presence of the officers of the mint, make such examinations of the said reserved pieces as were by us judged sufficient, and that thereupon it appeared to us a greater deviation from the legal standard of fineness than is allowed by law has been had in certain of the gold coins coined during the past year at the branch mint of the United States in New Orleans; wherefore we certify that fact, in accordance with the act of Congress in that behalf made and provided.

J. K. KANE.  
T. M. PETTIT.  
JAMES PAGE.  
ROBLEY DUNGLESON.  
JAMES B. ROGERS.  
EBEN N. HORSFORD.  
R. M. PATTERSON,  
*Director.*

To the PRESIDENT OF THE UNITED STATES.

IV.

MINT OF THE UNITED STATES,  
*Philadelphia, February 16, 1848.*

SIR: I send herewith a copy of the proceedings of the assay commissioners, who held their meetings at the mint, on the 14th and 15th instant.

You will see, from the minutes, that all the results were satisfactory, except the assay of the gold coins sent from the mint at New Orleans. This was found in one of the assays to be below the legal limit, in compliance with the 32d section of the mint act of January 18, 1837. The commissioners have accordingly declared this fact to the President of the United States, in a certificate which I send enclosed, with a request that you will lay it before him.

In the section above referred to, it is enacted "that such examinations shall be made of the reserved pieces as shall be judged sufficient; and if it shall appear that these pieces do not differ from the standard fineness and weight, by a greater quantity than is allowed by law, the trial shall be considered and reported as satisfactory; but if any greater deviation from the legal standard or weight shall appear, this fact shall be certified to the President of the United States; and if, on a view of the circumstances of the case, he shall so decide, the officer or officers implicated in the error shall be thenceforward disqualified from holding their respective offices."

The only officers that can be involved in this case are the assayer, Dr. Wm. P. Hort, and the melter and refiner, Dr. J. L. Riddell.

The standard fineness of the gold coins is 900 thousandths, but the law limits a variation from this standard of 2 thousandths; that quality may rise to 902, or fall to 898. From the minutes sent of the proceedings of the commissioners, it will appear that ten assays were made of the New Orleans gold coins, and the results were as follows:

No. 1.....	898 thousandths.
2.....	898.5 "
3.....	898 "
4.....	897.8 "
5.....	898.6 "
6.....	898.6 "
7.....	899 "
8.....	898 "
9.....	898 "
10.....	899.5 "

Of these, one only (No. 4) is short of the allowed limit, and this was a piece from the same bar which gave the results 1 and 3. It might be doubted, therefore, whether a real defect can be considered as proved.

The assays 1, 3, 4, 6, are from a bar which weighed 174.63 ounces; and 5, 6, from a bar which weighed 92.42 ounces. These bars included by far the greater portion of the coins; No. 2 being composed of only nine coins, and Nos. 7, 8, 9, 10, of single coins. The assays of the bars are therefore of the most importance, and their mean (taking the respective weights of the bars into consideration) is 898.2. As two of the single pieces, however, rose to 899 and 899.5, the inference that others must be below 898 is very strong; yet this has not been shown by actual assay.

But even if there were no positive proof that the gold coins from the New Orleans mint are, in any instance, below the limited standard, the assay which has been made leads to a result which is far from being satisfactory. In a coinage of six millions, a defect below the standard of 1.8 thousandth, would amount to \$12,000; and it is certainly proper that such investigations should be made as may show whether the defective fineness is to be ascribed to mere errors of assay, or to a purpose of gain on the part of the officers concerned.

The necessary information on this subject can be obtained only from New Orleans, and I have prepared a series of inquiries to be sent to the superintendent of the mint there, which will, I hope, put it in my



power to make a report to the President, which will present to him such "a view of the circumstances of the case," as will enable him to decide upon the course which he should take. I therefore most respectfully ask that he will defer taking action until the information sought for can be obtained.

Very respectfully, your faithful servant,

R. M. PATTERSON, *Director.*

Hon. R. J. WALKER,

*Secretary of Treasury.*

## V.

### MINT OF THE UNITED STATES,

*Philadelphia, April 15, 1848.*

SIR: On the 16th of February last, I had the honor to send to you a certificate from the assay commissioners, (whose sessions had been held on the two preceding days,) in which they declare that, after making such examinations of the reserved pieces as were by them judged sufficient, "it appeared to them that a greater deviation from the legal standard of fineness than is allowed by law has been had in certain of the gold coins coined during the past year at the branch mint of the United States in New Orleans; wherefore they certified this fact, in accordance with the act of Congress in that behalf made and provided."

The provision above referred to is in the 32d section of the mint act of January 18, 1837, in which it is enacted, "that before the commissioners, or a majority of them, and in the presence of the officers of the mint, such examinations shall be made of the reserved pieces as shall be judged sufficient; and if it shall appear that these pieces do not differ from the standard fineness and weight by a greater quantity than is allowed by law, the trial shall be considered and reported as satisfactory; but if any greater deviation from the legal standard or weight shall appear, this fact shall be certified to the President of the United States; and if, on a view of the circumstances of the case, he shall so decide, the officer or officers implicated in the error shall be thenceforward disqualified from holding their respective offices."

To present such "a view of the circumstances of the case" as would enable you to decide satisfactorily upon the course to be taken, required, in my opinion, further investigation into the matter, and particularly information which could be obtained only from New Orleans. I therefore took the liberty of most respectfully asking, through the Secretary of the Treasury, that you would defer taking action in the case until the required information could be received. You have done so, and I now lay before you the result of my inquiries.

On the 18th of February, I wrote a letter to the superintendent of the New Orleans mint, in which I presented a series of questions, of which a copy is subjoined, (marked A.)

To this letter I received an answer on the 16th ult., from Mr. Kennedy, enclosing reports made to him by the treasurer, the assayer, and

the melter and refiner. Of these documents copies are subjoined, (marked B, C, D, E.) I also send a copy (F) of the melter and refiner's gold account of 1849.

At my request, the assayers of the Philadelphia mint repeated their trials of the bars which had been examined at the meeting of the commissioners, and made numerous assays of the coins which had not been used on that occasion. A copy of their report (marked G) is subjoined.

These documents will put you in possession of all the important facts that bear upon the subject in question.

The standard fineness of the gold coins is 900 thousandths; but the law tolerates a variation from this standard of 2 thousandths—that is, the quality may rise to 902 or fall to 898. An examination of the assayer's report (G) shows that the lower limit, though often reached, was rarely exceeded; but it leads to the important conclusion that the average fineness of the gold coins of the New Orleans mint, for the year 1847, was only 898.2—a result which, though within the legal limits, is far from being satisfactory, and which, if allowed, might present a temptation to fraud.

The New Orleans gold coinage in 1847 amounted to \$6,085,000. At the fineness of 898.2, or 1.8 below the standard, there is a deficit in this amount of \$12,170. The important inquiry arises, whether this deficit has operated to the gain of the melter and refiner, (the accounting officer concerned,) and whether it is chargeable to a want of skill, or of carefulness, or of integrity, on the part of that officer, or of the assayer, or of both.

At the first view of the subject it certainly seems that the melter, and refiner must be an undue gainer by the defect of fineness in his ingots. There are circumstances, however, by which he might be relieved from the implication in whole or in part, and which should be considered before a final opinion can be formed. They are the following:

1. There might have been errors in the first assay of the bullion, by which its fineness was overrated, and consequently the payments made to the depositors greater than was their due. Now, it appears from the documents that the amount of gold deposited in 1847 was \$6,252,227, and of that coined \$6,085,000. Of this gold nearly the entire mass, namely, \$5,999,050, was received in deposits of British and French gold coins; and these were rated at 915.5 for the British, and 899 for the French—the same estimates at which we receive them, and which long experience has shown to be correct. It is moreover certain that the ingots made from such bullion, if fairly alloyed at these rates of fineness, must have averaged 900 fine. The low average of 898.2, therefore, remains unaccounted for.

2. The gain may have been absorbed in the wastage account of the melter and refiner. The allowance which he claimed for wastage on 668,515 ounces of gold was 98 ounces = \$1,823. The allowance at the Philadelphia mint on 1,183,565 ounces was 323 ounces = \$6,009. Proportionally to ours, this waste would have been \$3,394; so that, to the extent of \$1,571, as compared with ours, there has been a saving to the government. This result is favorable to the account of the branch mint, but no circumstances are to be balanced against it. First, amidst all the contingencies and perplexities involved in the matter of wastage, it has hap-



pened that ours was unusually large; second, in the final settlement of the melter and refiner of the branch mint, there is a credit claimed for estimated value of gold-sweeps to the amount of \$465—whereas, our gold-sweeps, the accumulation of twice as much work, was estimated at \$499. There is, therefore, some reason to apprehend an over-credit on this score at the branch mint.

3. The “allowance for dirt” on coins deposited may have been so small as to injure the melter and refiner’s account. This is indeed a minor matter, but is yet proper to be examined. The allowance for dirt upon 653,820 ounces of gold coin received was 39.81 ounces. The same allowance at New Orleans on 317,714 ounces was 48.25 ounces; whereas, if it had been in the same proportion as ours, it would have been 19.34 ounces only. It is evident, therefore, that the melter and refiner’s account was at least not injured in this item.

The melter and refiner, in his letter (marked E,) states, that in order to compensate “for copper turned out in making the alloy,” he “generally added  $1\frac{1}{4}$  ounces of copper to 1,000 ounces of sovereigns—aiming at a title of \$99.5, and depending upon the subsequent refining of the clippings to approximate the average title to 900.” Our experience at the Philadelphia mint shows the loss on burning out of copper in gold melts, and the refining of clippings, to be to such small amounts as not to justify any allowance for them in preparing standard melts. The melter and refiner should, therefore, have aimed at 900, and not  $\$99\frac{1}{2}$ , in adding alloy to the sovereigns. But even if his principle were correct, his calculation must have been wrong, as  $1\frac{1}{4}$  ounces of copper added to 1,000 ounces of sovereigns would reduce them, not to  $\$99\frac{1}{2}$ , but to \$99. With regard to the French coins, he says: “To modern French gold, (the 20 and 40 francs,) I make no addition of copper or fine gold.” Now, these coins were received at the fineness of \$99, and if melted without the addition of gold, would have made ingots of the same quality. It appears, therefore, that whatever may have been the intention of the melter and refiner, he actually worked for ingots of \$99 thousandths instead of the legal standard, 900; and the result of the annual assay shows that he fell nearly another thousandth below this.

On a view of the whole case, I regret to say that I am unable to find any explanation which will account satisfactorily for the defect shown to have occurred in the gold ingots prepared by the melter and refiner, or which will excuse the error in which he is implicated.

The reports of the assayer of the New Orleans mint to the treasurer, for 1847, have all been sent to me. From these it appears that 393 melts of gold ingots were tested; that their fineness varied from 899 to 900.5 thousandths, and that the average of the whole was \$99.7. This result differs from that presented at the annual assay by  $1\frac{1}{2}$  thousandth, a disagreement which cannot be accounted for on any satisfactory grounds. I am well assured of the competence and skill of the assayer, but this only serves to make the case more difficult.

It might be supposed that the favorable reports of the assayer should relieve the melter and refiner from responsibility. I do not think, however, that this is so. The fineness of the gold deposits was truly assumed, and, according to the statement of the assayer, (letter D,) “occasional assays of them were made, to see that there was no variation

in the title." It is certain, therefore, that the ingots made from such bullion, if fairly alloyed at these rates, must have averaged 900 fine even without any assay, from first to last.

I believe that I have now laid before you all the information that it is in my power to give regarding the circumstances of this painful case. The course which remains to be taken is, by law, committed to your decision.

I have the honor to be, sir, very respectfully, your faithful servant,

R. M. PATTERSON,

*Director.*

The PRESIDENT OF THE UNITED STATES.

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V.—a.

MINT OF THE UNITED STATES,  
*Philadelphia, February 18, 1848.*

SIR: I send, enclosed, a copy of so much of the report of the assay commissioners, who were in session here on the 14th and 15th instant, as has regard to the reserved coins from the branch mint, New Orleans.

You will see that the assay of the gold coins showed, in several instances, a title 2 thousandths below the standard, and in one instance 2.2 thousandths below; so that the commissioners felt themselves bound to certify this fact to the President.

In a letter to the Secretary of the Treasury, which accompanied the certificate of the commissioners, I presented such a view of the case as will, I think, make it distinctly and fairly understood, and I requested that the President should not take action upon it until I could get information from you as to several points which have important bearing upon the subject.

Let me, then, beg your answers to the following questions:

1. What were the amounts, by weight, of English and French gold coins deposited for recoinage?

2. At what titles are the English and French gold coins reported by the assayer?

3. In making up a melt of British or of French gold coins—say, for example, of 1,500 ounces—what does the melter and refiner add, in order to produce metal of the United States standard?

4. What is the course pursued in the selection of ingots for assay, and is it such as satisfactorily to show that such ingots were actually poured from the melts which they are made to represent?

5. Are the ingots, whether made from clippings or other bullion, invariably assayed before delivery, and is the operation always performed by the assayer himself?

6. What is the limit of variation from 900 thousandths, at which, in the practice of the mint, gold ingots are rejected by the assayer?

7. Send me either the original or a copy of the assayer's reports of gold ingots, delivered to the treasurer during the past year?



8. What is the allowance made in the gold assays for a remaining surcharge of silver, after the processes of quartation?

I pray you also to communicate to me any further information that you may possess which bears upon the subject in question; and I shall also be glad to learn your views with regard to it, whether you present them openly or confidentially.

Very respectfully, your faithful servant,

R. M. PATTERSON,  
*Director.*

J. M. KENNEDY,  
*Superintendent, New Orleans.*

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V—b.

UNITED STATES BRANCH MINT,  
*New Orleans, March 7, 1848.*

SIR: I send, according to your request, the assayer's report of gold ingots, delivered to the treasurer during the past year. Your letter of the 1st ultimo, upon the subject of the annual assay of reserved coins, recently made in Philadelphia, was, with the accompanying documents, upon its receipt, laid before the treasurer, assayer, and melter and refiner of this mint, and I now also hand you, herewith, a communication from each of these officers, containing the information you desire in reference to their departments respectively. Should you deem any changes in our gold operations necessary, be good enough to lose no time in communicating them to me. I have, in the meanwhile, directed Dr. Hort to use extraordinary care in his assays of gold ingots, and to repeat them until the accuracy of his results be put beyond the possibility of doubt. I may again, to-morrow or on the next day, communicate with you on this subject.

Respectfully, your obedient servant,  
JAS. M. KENNEDY,  
*Superintendent.*

Dr. R. M. PATTERSON,  
*Director of the U. S. Mint, Philadelphia.*

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V—c.

UNITED STATES BRANCH MINT,  
*New Orleans, Treasurer's Office, March 4, 1848.*

SIR: I have to acknowledge the receipt of your communication of yesterday's date, with the enclosures.

Of the interrogation put by Dr. Patterson, the first and second only seem to require my attention; and, in reply, I beg leave to refer you to a statement herewith enclosed, made out from the books of the weighing room.

I also send you, herewith, the original of the assayer's reports on gold ingots, delivered to me during the past year.

Very respectfully, your obedient servant

JOHN R. MACMURDO,

*Treasurer.*

JOS. M. KENNEDY, Esq.,

*Superintendent Branch Mint, New Orleans.*

British gold deposited in 1847, gross ounces.....	280,225.87
Allowance .....	42.81
Delivered to melter and refiner, at 915.5 M, gross ounces..	<u>280,183.06</u>
French gold deposited in 1847, gross ounces.....	36,865.71
Allowance .....	5.46
Delivered to melter and refiner, at 899 M, gross ounces...	<u>36,860.25</u>

Also, one deposit of French gold, weighing 622.40 ounces, was delivered to the melter and refiner, without allowance, at 899.2 M.

The above deposit of French gold, 622.40 ounces, was not assumed, but melted, and a title of 899.2 reported by Dr. Hort. I was induced to have this deposit melted for assay, as it was all new and of recent date, and because in a letter, dated November 8, 1842, addressed to the then treasurer, Mr. Cammack, by the Director, I found the following: "sovereigns may be assumed at 915½ M; Napoleons and the coins of Louis XVIII, at 899; but new French gold (and such seems to be your deposit) ranks at 900, and is so received by us." Other experiments of a like character were made, but this is the only instance in which the title was reported at more than 899 M.

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V—d.

ASSAYER'S OFFICE,

*New Orleans, March 3, 1848.*

SIR: I have read the extracts from the minutes of the assay commissioners, held the 14th and 15th of February, at Philadelphia; the result of the trial of coins reserved in 1847; also extracts from a communication of the 18th ultimo, addressed to you by Dr. Patterson, containing certain interrogations.

I cannot but feel much surprised at the result of the assay of gold coins from this mint in 1847. It is as unexpected as it is unaccountable.

Most of the gold deposited here in 1847 consisted of English and French coins, which, by consent of the parties concerned, were assumed at the usual rates of 915.5 M, and 899 M.

Upon these assumed titles, as well as upon titles ascertained by assay, the melter and refiner predicated the composition of his melts. I am



not aware of a single instance in which the assays of the gold ingots cast from such melts showed the slightest variation from that officer's calculation. This of itself would appear to be a sufficient check; but there is another in the clippings, which is repeated over and over again. Neither the melter and refiner, nor myself, suspected the possibility of the title of the reserved gold coins falling below 899 M. On the contrary, we calculated on 899.5 as the title.

It appears that on the re-assay, on the 15th February, of the bar of gold assayed on the 14th, the upper part of the bar gave a title of 898 M, and the lower part 897.8, showing a difference of two-tenths. I never imagined that such a difference could exist in a small bar of standard gold; but if such is the case, why should not a similar variation, or even one to a greater extent, occur among the ingots of a gold melt, of which only one ingot is assayed? The possibility of such a fact, which is now demonstrated by the melting and assays in Philadelphia, would seem to require many more assays of each gold melt than what has heretofore been customary.

The 2d, 4th, 5th, 6th, and 7th interrogations refer to my department. I shall reply to them in regular course.

2d. At what titles are English and French gold reported by the assayer?

Answer. These coins are almost always assumed by consent of the treasurer, melter and refiner, and assayer—the sovereigns 915.5 M, and the French 899 M—occasional assays being made to see that there is no variation in the title.

4th. What is the course pursued in the selection of ingots for assay, and is it such as satisfactorily to show that such ingots were actually poured from the melts which they are made to represent?

Answer. The gold and silver ingots for assay are always selected and set aside in the melting department, on the day they are cast, by the gold and silver melters. The next morning they are handed to the assayer's assistant, who carries them to the assay department. I believe the middle gold ingot of a melt is always the one set apart for assay.

5th. Are the ingots made from clippings, or other bullion, invariably assayed before delivery, and the operation always performed by the assayer himself?

Answer. The ingots, whether from clippings or other bullion, have been, without a single exception, assayed before delivery. In the case of silver ingots the whole operation is performed by the assayer. In the assay of gold ingots, the assayer weighs the necessary quantity, adds the required proportion of silver, conducts the even assay, and sees the cornet in the acid; the assistant attends to the balance of the operation. All the weighing is invariably done by the assayer.

6th. What is the limit of variation from 900 M, at which, in the practice of the mint, gold ingots are rejected by the assayer?

Answer. As a general rule, all above 900 M, and below 899 M, are rejected. On certain occasions, however, when two or three melts have run from 900 to 901, one or two melts a shade below 899 M, have been passed with the view of making a proper average.

7th. What is the allowance made in the gold assays for a remaining surcharge of silver, after the process of quartation?

Answer. After boiling the cornet in pure acid at  $22^{\circ}$  for twenty minutes, and then ten minutes two successive times in fresh acid, at  $32^{\circ}$ , no allowance for a remaining surcharge of silver has ever been made at this mint. The assayer has never received any instruction on the subject, but has always pursued the plan taught him in 1837 in the parent mint, believing that the operation as performed in the French mints removed all the silver. Had there been a remaining surcharge of silver in consequence of the acid used being too weak, or had any other cause of error existed, it must have produced a variation from the calculation of the melter and refiner, at least in all cases of assumed title, which would have been immediately followed by a rigid examination into the cause of error.

The average of the different gold assays made in Philadelphia, bar against bar, and individual coins against other individual coins, is 898.4 M, being four-tenths above the legal, and six-tenths below the mint standard.

1st assay.....	898
2d. do.....	898.5
3d. do.....	898
4th. do.....	897.8
5th. do.....	898.6
6th. do.....	899
7th. do.....	898
8th. do.....	$899.5 = 7187.4 \div 8 = 898.4 \text{ M.}$

According to the calculation of the melter and refiner and myself, who kept a steady eye on the operations in gold throughout the year, our average should have been at least one millieme higher.

Respectfully,

WILLIAM P. HORT,  
*Assayer.*

JOSEPH M. KENNEDY, Esq.,  
*Superintendent Branch Mint, New Orleans.*

P. S.—Please send this communication, or a copy of it, to Dr. Patterson.

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V—c.

BRANCH MINT, NEW ORLEANS,  
*March 3, 1848.*

SIR: Your favor of yesterday, and the documents alluded to, have been received. In respect to the Director's questions, the 3d and 4th, only, have relation to my department.

In reply to the 3d question, I have found that copper added to sovereigns, at the rate of  $17\frac{1}{4}$  ounces to  $18\frac{1}{2}$  ounces for 1,000 ounces of sovereigns, produced ingots within the mint limits of title, (say from 899 thousandths to 901 thousandths,) the fineness depending in part, as I have supposed, on the amount of copper burned out in making the



alloy. Have generally added  $18\frac{1}{2}$  ounces of copper to 1,000 ounces of sovereigns, aiming at the title 899.5 thousandths, and depending upon the subsequent refining of the clippings to approximate the average title to 900 thousandths. To modern French gold, (the 20 and 40 francs,) when melted free from other gold coins, I make no addition of copper or fine gold. But if Italian coins are present, as they frequently are, I aim to raise the title by adding sovereigns or fine gold.

In regard to the selection of ingots for assay, the assayer's assistant some years ago took the assays indiscriminately from the boxes containing separate melts of ingots. Within two or three years past, a different plan has been pursued. The ingots of a melt are laid in regular order as they come from the moulds, and are immediately numbered as they lie, by the workmen, from 1 to 20, 25, 30, or whatever number of them in the melt there may be. The middle ingot, or ingot of mean number, is taken at the time by the gold melter, to be laid on the top of the box containing the ingots, for convenience, to be given by the gold melter to the assayer's assistant. Every ingot is numbered also, with the number of the melts. All these numbers are deeply and legibly impressed by steel punches. All these matters are managed with rigid formality and precision, in presence of the workmen exclusively, by the gold melter, who has had seven or eight years' experience. Every gold ingot cast in 1847 was delivered to the treasurer. Not a melt was condemned. An error or mistake, therefore, as to the assay ingots, within the past year, is scarcely possible.

It is proper to add, that after the pot of alloy has been well stirred and is ready to be poured, no addition is ever permitted to be made to it until all the ingots constituting the melt are cast—an operation that requires fifteen or twenty minutes, the melter and two assistant workmen being in the room the while.

The assayer and myself have both been under the impression that, with due care, there is little or no risk of having any uneven melt of gold. We made some experiments, years ago, on the title of the top, middle, and bottom of pots of gold alloyed for ingots, and finding them essentially to correspond, inferred that the middle ingot might safely be taken for assay. Nevertheless, since in melting a small bar ( $174\frac{63}{100}$  ounces) from our assay coins at the parent mint, a notable discrepancy between the bottom and top has evinced itself, it is clear we may have trusted our experiments too far, and, perhaps, really the ingots cast from the top of the pot may sometimes have been without the limit, while the middle ingot was within.

Respectfully, your obedient servant,

J. L. RIDDELL,

*Melter and Refiner..*

J. M. KENNEDY, Esq.,

*Superintendent.*

## V—f.

*The treasurer of the branch mint, New Orleans, in account with the melter and refiner.*

## GOLD.

Dr.	Ounces.	Cr.	Ounces.
1847.		1847.	
Dec. 31. To amount of gold bullion in the form of ingots delivered during the year 1847.	668,515.160	Dec. 31. By amount of gold bullion and clippings received during the year 1847.	678,237.249
To amount of gold bullion delivered this day in annual settlement.	9,598.888		
To net amount of gold in sweeps, as per the assayer's certificate herewith filed.	24.968		
To wastage during the year.....	98.233		
	678,237.249		678,237.249

MELTER AND REFINER'S OFFICE, BRANCH MINT, NEW ORLEANS,  
December 31, 1847.

J. L. BIDDELL, Melter and Refiner.



V—g.

ASSAY OFFICE, UNITED STATES MINT,  
*April 3, 1848.*

The assayers of the mint, upon request of the Director, respectfully communicate to him the following facts and observations relative to the deficit in the fineness of the gold coins of the branch mint at New Orleans for the year 1847.

The results obtained before the annual commission are already in the Director's possession. The assays of the two bars of gold melted under the supervision of the commissioners have since been repeated over and over again, and fully confirmed. To conclude this part of the inquiry, we have, at the Director's suggestion, assayed, singly, a number of the reserved coins remaining, and finally the whole remnant has been melted down and its fineness ascertained. We now bring the various results into one view.

The first bar, consisting of about one-half of the reserved coins, gave.....	897.8 to 898	fine.
The second bar, about one-third of the reserved coins, gave.....	898.5	"
The remnant, in two small bars, about one-sixth of the reserved coins, gave.....	898.5	"

Of the assays of single coins, four were made in presence of the commissioners, and forty-eight since; in all, fifty-two, viz:

1 piece was.....	897.5
1 piece was.....	897.8
4 pieces were.....	898
5 pieces were.....	898.2
1 piece was.....	898.3
7 pieces were.....	898.5
1 piece was.....	898.6
3 pieces were.....	898.7
3 pieces were.....	898.8
17 pieces were.....	899
1 piece was.....	899.2
5 pieces were.....	899.5
1 piece was.....	899.6
2 pieces were.....	899.7

Hence it appears that the average of the whole mass of reserved coins was not higher than 898.2 fine. The average of the trials of single pieces is somewhat higher, proving that there must have been a larger proportion of the lower class in the first bar melted; but from the analogy of results, it seems most likely that in no case has there been any flagrant transgression of the legal boundary, and that the general scope of individual coins was from 897 to nearly 900; at least there is no necessity for inferring any worse condition of any part of the coinage.

Having no opinion to express upon any part of this investigation, we may nevertheless, as assayers, and so far interested, briefly argue,

that the stake of official fitness or integrity upon the ordeal of a single coin, or several coins singly, would be so severe, that no one could be safe in assuming the responsibility of the office of assayer. From numerous experiments, or rather from long experience, we are satisfied, that although the precious metals, in alloy with each other or with copper, are susceptible of perfect mixture when the manipulations are conducted with skill and unremitted attention, yet those conditions may sometimes be wanting, and the officer is subjected to the fallibility of a trust in the workmen, and those, too, in a department over which he has no supervision. So that, with all vigilance in the selection of assay ingots, and insisting upon carefulness in the melting department, the assayer cannot be sure that every portion of the metal in the pot, suppose some hundreds of ounces, is exactly represented in its fineness by the few grains' weight taken from any place of the mass. At least, he could only be safe by having the control of the melting operations, and indeed performing them with his own hands, to his own satisfaction. This being out of the question, it seems only fair to allow him the trial of several pieces, be they many or few, taken together, to afford at once a compensation of errors, and an average of fineness. For a precise understanding of the scope of these suggestions, we conclude them by the statement, that a melt of standard gold, well conducted, need not show, between the first and last ingot, the variation of two-tenths of a thousandth: if carelessly done, the metal, though properly alloyed for a result of 900, might show in one place a fineness of 898, and in another of 902; though this would be a rare event. In standard silver we have not attained, as yet, so exact a homogeneity as in the other metal.

On the other hand, if the bullion were that of a steady and known fineness—say British or French gold—and properly rated and alloyed, there could not be any other than an average result of 900, our legal standard.

JACOB R. ECKFELDT,  
*Assayer.*

WM. E. DUBOIS,  
*Assistant Assayer.*

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## VI.

TREASURY DEPARTMENT,  
*First Auditor's Office, December 19, 1850.*

SIR: Hereafter, in the rendition of your gold and silver bullion accounts, you are requested to charge the melter and refiner with all gold and silver placed in his hands, whether the value of the metal parted from either gold or silver accrues to the depositor, or whether the mint regulation, under the 14th section of the act of 18th January, 1837, precludes him from the benefit thereof; *i. e.*, whenever, after deducting charges for separating these two metals, there is not left the value of five dollars of silver or gold, no credit therefor is allowed the depositor; and the same necessarily accruing to the mint, and being in



the hands of the melter and refiner, there seems to be no reason why that officer should not be held accountable therefor, in a like manner as he is for all other bullion confided to him; and the transaction should form an item of debit and credit in the quarterly accounts of the treasurer and melter and refiner, and ought not to be, as has heretofore been the practice, either blended with the wastage account in the annual settlement thereof, or simply passed to the account of profit and loss.

Whatever deductions or credits may be requisite or proper to be allowed to the melter and refiner, by reason of the nature of the operations to be performed, should, of course, be allowed to him in account.

This system should be adopted at the earliest practicable period.

Respectfully, your obedient servant,

T. L. SMITH,  
*First Auditor*

E. C. DALE, Esq.,  
*Treasurer of the Mint, Philadelphia.*

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## VII.

### MINT OF THE UNITED STATES, *Philadelphia, December 21, 1850.*

SIR: I have received your letter of the 19th inst., in which you request me, in the rendition of my gold and silver bullion accounts hereafter, to charge the melter and refiner with all gold and silver placed in his hands, whether the value of the metal parted from either gold or silver accrues to the depositor or to the mint. You remark that this transaction should form an item of debit and credit in the quarterly accounts of the treasurer and melter and refiner, and ought not to be, as heretofore, blended with the wastage account, in the annual settlements thereof, or simply passed to the credit of profit and loss.

I believe our practice heretofore has conformed with the directions above cited, with one exception; *i. e.*, the bullion parted for the benefit of the mint, and not for depositors, has not formed an item to the debit of the treasurer's bullion account, but has passed directly to the credit of profit and loss, at the time of charging the melter and refiner therefor, care being taken not to blend it with the wastage account in the annual settlement.

In conformity with your request, I shall hereafter charge silver or gold bullion with the value of the metal parted for the benefit of the mint, and credit profit and loss therefor, and then charge the melter and refiner, and credit silver or gold bullion with the same value. This form of entry will show the value of all the bullion received at the mint in its appropriate account.

This I understand to be the purport of your letter. Am I correct?

Very respectfully, your obedient servant,

EDWD. C. DALE,  
*Treasurer United States Mint.*

T. L. SMITH, Esq.,  
*First Auditor.*

## VIII.

*Statement of gold deposited, silver parted, and total charges thereon, from 1850 to 1852, both inclusive; embracing, also, the portion of the total charges which was for silver alloy.*

	Gold deposited.	Credit for silver.	Deductions.	Silver alloy.
1st quarter 1850 .....	\$4,741, 114	\$31, 066	\$11, 153	\$2, 789
2d quarter 1850 .....	6, 411, 626	40, 772	22, 216	7, 308
3d quarter 1850 .....	9, 401, 467	64, 177	34, 591	11, 397
4th quarter 1850 .....	12, 591, 193	79, 417	52, 412	24, 181
1st quarter 1851 .....	10, 943, 890	59, 423	46, 404	25, 680
2d quarter 1851 .....	9, 753, 593	65, 570	35, 757	11, 767
3d quarter 1851 .....	11, 272, 479	79, 136	41, 985	13, 819
4th quarter 1851 .....	15, 824, 935	113, 338	60, 807	20, 032
1st quarter 1852 .....	11, 027, 598	77, 618	41, 157	13, 542
2d quarter 1852 .....	14, 068, 159	101, 225	53, 293	17, 532
3d quarter 1852 .....	11, 080, 375	81, 208	42, 479	13, 968
4th quarter 1852 .....	14, 693, 083	113, 749	48, 841	8, 868
	131, 809, 512	906, 699	491, 095	170, 883

## IX.

TREASURY DEPARTMENT,  
*First Auditor's Office, July 28, 1851.*

SIR: Upon an examination of your bullion accounts for the first quarter, 1851, it appears that the amount of silver used in the refinery is much greater, in proportion to the amount of gold worked by the melter and refiner, than was used in that process in any preceding quarter.

Please make the necessary explanations at your earliest convenience.  
Respectfully your obedient servant,

T. L. SMITH, *First Auditor.*

E. C. DALE, Esq.,  
*Treasurer of the Mint, Philadelphia.*

## X.

MINT OF THE UNITED STATES,  
*Philadelphia, July 30, 1851.*

SIR: In reply to your letter of the 28th, asking an explanation of the larger proportionate amount of silver used in the refinery at the mint, during the first quarter, as exhibited in my accounts, I have to present the following statement:

The 8th section of the mint act of January 18, 1837, provides that "the alloy of gold coins shall be of copper and silver, provided that



the silver do not exceed *one-half* of the whole alloy." In the same section the total alloy is fixed at one hundred thousandths, one half of which, or  $\frac{50}{100000}$ , is therefore the extreme limit of silver alloy admissible.

In ordinary circumstances the silver alloy introduced does not, however, exceed  $\frac{20}{100000}$ , and such was the rate at which silver was used by the melter and refiner in the quarter preceding that to which your inquiry relates. To bring silvery gold down to this limit, requires on our part extensive operations in the separating or refining department, to part out the superfluous silver. These operations will of course be diminished just in proportion to the amount of silver which we permit to remain in such bullion; and you can understand, therefore, that if an immense amount of such bullion had become accumulated on our hands, it would be a wise discretion in the mint to part out the silver less completely, leaving it in the bullion to constitute silver alloy in the ingots. Such a course became imperative to us during the first quarter of this year, and the melter and refiner was authorized by the Director to alloy his ingots to the full limit,  $\frac{50}{100000}$ , or, in effect, to abstain for a time from the close parting operations on silvery gold to which he had been accustomed. As a consequence, the silver used by him as alloy, and credited to his account (he having been charged with *all* the silver in gold,) was largely increased over the previous proportion. I may add, in this connexion, that the old allowance of  $\frac{20}{100000}$  for alloy has been restored.

You should understand that whether the alloy used is great or small, it is borne by the depositor, being charged to him under the 18th section of the act above referred to.

Very respectfully, your obedient servant,

E. C. DALE, *Treasurer.*

THOMAS L. SMITH, Esq.,  
*First Auditor, &c., Washington.*

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## XI.

*Extract from the annual report of the Director of the Mint, dated 27th January, 1851.*

"A comparison of the deposits and coinage of gold at the Philadelphia and New Orleans mints exhibits large uncoined balances at the close of the past year; the amounts being, at Philadelphia, \$5,393,413, at New Orleans \$1,028,315. I feel it to be my duty to present a brief and very general explanation of the causes to which this circumstance is to be attributed.

"Prior to the discovery of the California mines, the deposits at this and the New Orleans mint were almost entirely in foreign coins, which, being already refined, were fit to pass into ingots for coinage without other preparation than a proper admixture to bring them to our own standard. The apparatus and coining arrangements were quite ample for converting into our own money any probable amounts of deposits of this character



"California gold, however, contains a large proportion of silver—above one-ninth of the mass being in that metal. This is much more than we are allowed by law to leave in the gold coin as alloy. A separation of the superfluous silver, therefore, became necessary.

"This department of labor, although it forms, generally, in other countries, no part of the functions of their mints, has been made obligatory upon the mints of our own country. Separating (or refining) departments had accordingly been organized upon a scale quite moderate, indeed; but much more than sufficient for all the business of that kind prior to the influx of the California gold.

"The refinery of the Philadelphia mint at the close of 1848, when the first deposits from California were received, was capable of separating about \$100,000 per month of argentiferous gold bullion. Since then the amount of that bullion received has gone on increasing, month by month, until it reached \$4,600,000 in December last.

"To meet the demands thus made upon us, very extensive enlargements became necessary, and have been effected, in the refining department of the mint. By arrangements now on the point of completion, the capacity of this establishment for refining will have reached to from six to seven millions of dollars per month by the separating process now in use.

"This large increase of power has not been attained without many necessary delays and interruptions in the progress of our work, while the stream of our deposits was constantly on the rise; so that, although the changes indicated were prosecuted with the greatest energy, we have not been able to avert the accumulation of the large uncoined balance to which I have referred.

"I see no reason to doubt, however, that, with the means now at our disposal, and such further enlargements as are in our power, the mint will be enabled in a few months both to free itself from the debt now accumulated, and to secure prompt payment of all future deposits.

"At the New Orleans mint, difficulties analogous to our own have been sustained, with some others to which we have not been subjected. There is no reason, however, to doubt the competency of that mint to any coinage which is likely to be demanded of it."

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## XII.

*From R. M. Patterson, Director of the Mint, to Hon. Thomas Corwin, Secretary of the Treasury, dated Philadelphia, March 7, 1851.—Extract.*

"When the system has been some time in operation, there will of course be balances in the hands of the treasurer, constituting a profit on the coinage [of the three-cent piece.] The profits derived on the coinage of copper (from ten to fifteen thousand dollars annually) are transferred to the ordinary account of the mint, and applied to the payment of our incidental expenses. It is probable, however, that the profits on the coinage of the three-cent piece will be large enough not



merely to pay our *contingent* expenses, but *all* our expenses. It does not seem desirable for any government institution to derive an independent means of support, and it would be preferable, I think, that the profits of the coinage should, from time to time, be transferred to the treasury of the United States."

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XIII.

*From the Secretary of the Treasury to the Director of the Mint, dated Washington, March 26, 1851.—Extract.*

"Future instructions will be given as regards the application of the balance which will remain to the credit of this account arising from the profit on the recoinage."

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XIV.

*From the Director of the Mint to the Secretary of the Treasury, dated Philadelphia, November 8, 1851.—Extract.*

"In a letter from the department, of the 26th of March last, it was stated that the profit arising from the three-cent coinage, (from the fact that their intrinsic value, or cost to the mint, is less than their value by tale,) should 'remain subject to the future disposition of the department.'

"The period being at hand when the estimates of the mint for the next fiscal year must be prepared, it is desirable to know the views of the department with reference to the disposal of these profits. If they are to be passed to the credit of the treasurer, for the payment of ordinary expenses, (as is done with the profits on copper coinage,) our estimates must be reduced in proportion to the anticipated gain. The amount of these profits, to the 30th of September, was \$18,723, arising from a coinage of less than six months. If this proportion should continue hereafter, and the proceeds applied to the use of the mint, they will constitute a considerable item of our available means."

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XV.

*From the Secretary of the Treasury to the Director of the Mint, dated Washington, November 10, 1851.—Extract.*

"The department can see no objection to the amount of the profits on the coinage of the three-cent pieces being applied to the payment of the ordinary expenses of the mint, unless it should be required for the purchase of silver, which, from your letter, it appears will not, probably, be the case. It may, therefore, be so applied for the present."

